2010-10-27 Wednesday Morning Notes

Wednesday, October 27, 2010
6:00 AM

On-call

- Wednesday and Thursday: Vladimir Nagaslaev
- Friday: Keith Gollwitzer

Stacking

- <stacking rate> = 26.8 mA/hr
- <production> = 24.2 pbars/Mp
- <pot> = 8.51 Tp

Transfers

- Unstacked 490E10 in 55 transfers over 18 sets
- <efficiency>=96%
- 96.&% if you take out the transfers were we didn't have ecool

Access Request

We are going to do both the JASMIN shielding block work at AP0 and the AP1 temporary vacuum window installation in the PreVault Enclosure tomorrow (Wednesday) morning. Run Coordinator, Operations and Rad Safety are all aware. Here are some details.

The JASMIN shielding block work will involve moving the South wall of the upper vault in order for the final keystone concrete block to be installed. Recall, on October 20th, the JASMIN shield blocks were installed, with the exception of the keystone block (see http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pts&action=view&page=385&anchor=235023&hilite=23:50:23- for details).

The AP1 vacuum work is to address a vacuum leak that started on October 11 (see http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar10&action=view&page=267&anchor=125324&hilite=12:53:24-) and was later found to be inside of the vault shielding wall in the downstream portion of the AP1 line (see http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar10&action=view&page=269&anchor=143349&hilite=14:33:49-). The AP1 line vacuum ends at a Be vacuum window a foot or two inside the shielding wall. Since then the downstream AP1 ion pumps have been running on the edge of their trip limit, and it is unclear how much longer we can run this way. Permanent repairs will involve removing some components close the shielding wall to remove the beam pipe that extends into the wall. This work will be done during a later shutdown period. During tomorrows downtime, we will complete some temporary repairs that involve installing a new vacuum window in the downstream portion of the AP1 line between PQ8B and PV8T. Upstream of this window will be pumped back down to normal vacuum levels, and the short stretch of beam line (that has the leak) between this vacuum window and the Be window will be roughed. The roughing pump that will be used downstream of the vacuum window is too large and heavy to make it down the stairs of the PreVault enclosure, so we must lower it through the hatch. This means PreVault must go Supervised Access during this work.

So, how are we going to make this happen? Below is a rough schedule.

- 6:00am: Stacking beam is turned off. Shielding Block work begins at AP0, and cool-down for PreVault enclosure begins.
- 7:15am: PreVault cooldown should be complete as defined by G:RD2072 decaying to 400 Cpm or less (see http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar10

&action=view&page=269&anchor=081851&hilite=08:18:51- for data on the last cool-down).
- 7:30am: PreVault Rad Survey
- by 8:30am: PreVault Enclosure becomes Supervised Access.
- 9:00am: Blocks pulled at AP0 to lower vacuum equipment into PreVault Enclosure.
- End of day shift: PreVault blocks restored and search and secure of PreVault enclosure
- 4pm - 6pm: Finishing up JASMIN shielding block work
- Evening shift: Back to stacking.

Numbers

- Stacking
  - Pbars stacked: 583.04 E10
  - Time stacking: 23.40 Hr
  - Average stacking rate: 24.92 E10/Hr

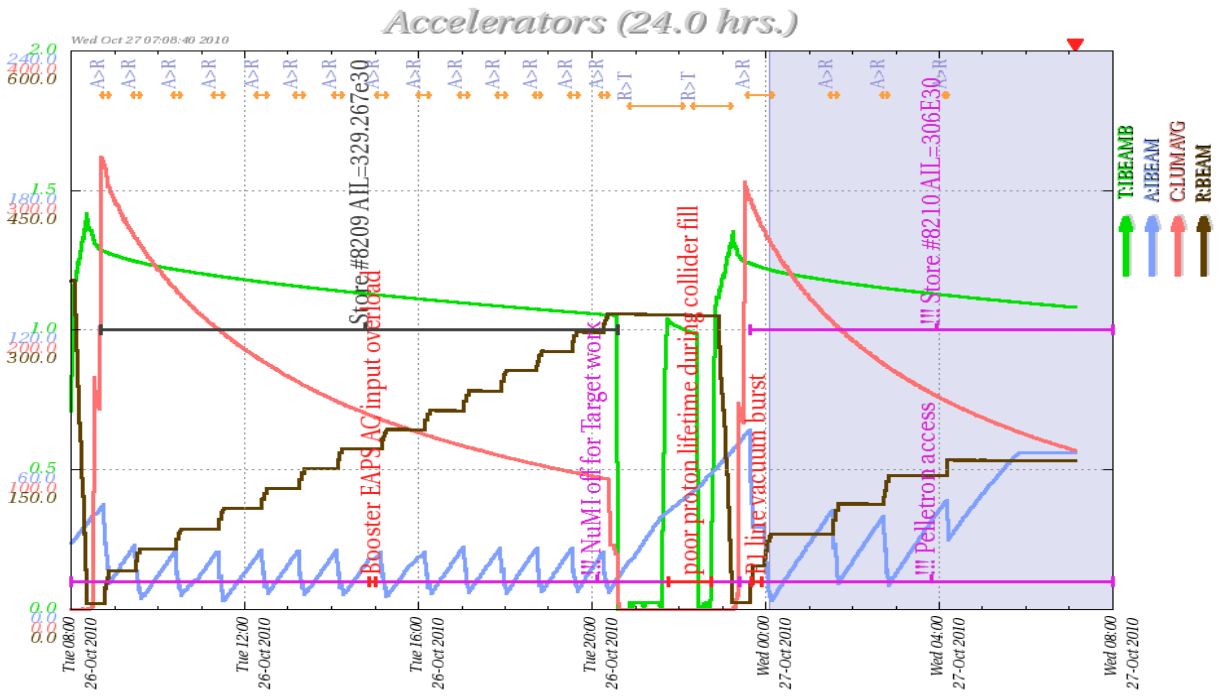
- Uptime
  - Number of pulses while in stacking mode: 29028
  - Number of pulses with beam: 26890
  - Fraction of up pulses was: 92.63%

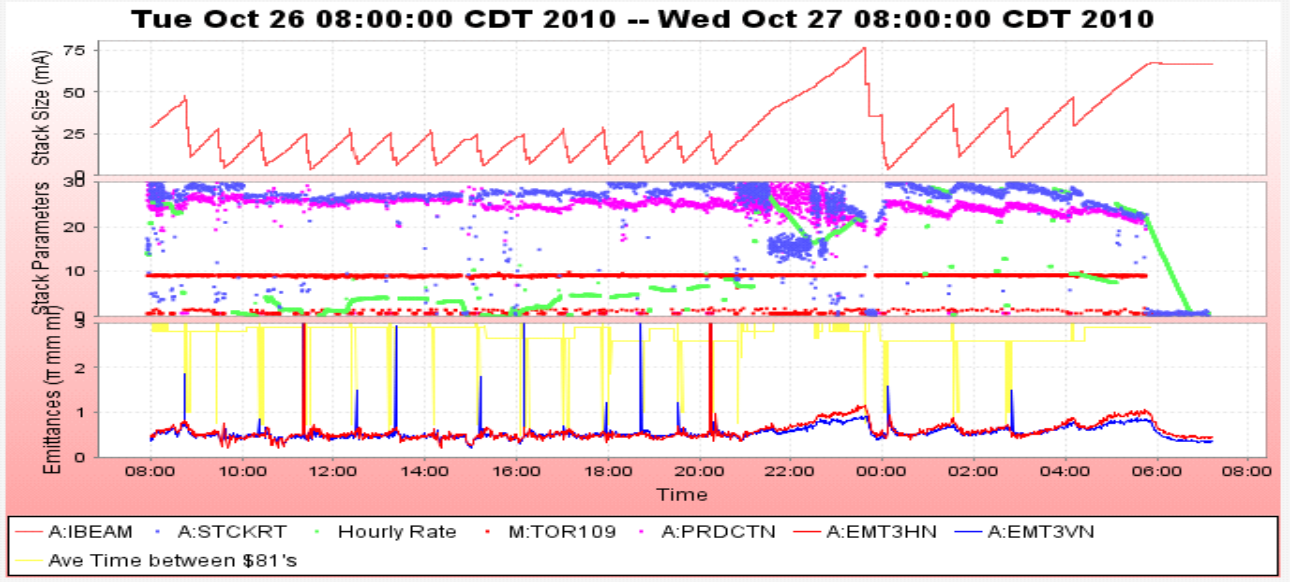
- The uptime's effect on the stacking numbers
  - Corrected time stacking: 21.68 Hr
  - Possible average stacking rate: 26.90 E10/Hr
  - Could have stacked: 629.40 E10/Hr

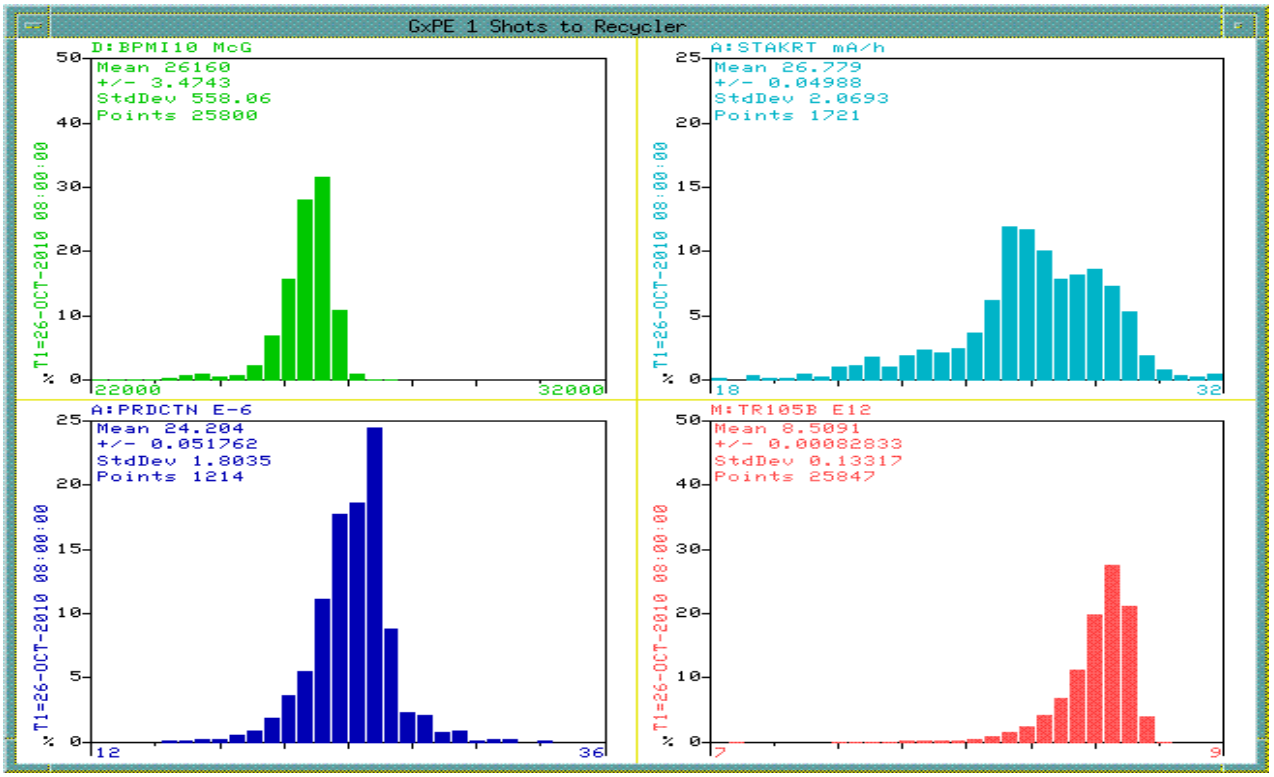
- Recycler Transfers
  - Pbars sent to the Recycler: 501.21 E10
  - Number of transfers : 57
  - Number of transfer sets: 18
  - Average Number of transfer per set: 3.17
  - Time taken to shoot including reverse proton tuneup: 00.20 Hr
  - Transfer efficiency: 96.04%

- Other Info
  - Average POT : 8.50 E12
  - Average production: 25.50 pbars/E6 protons

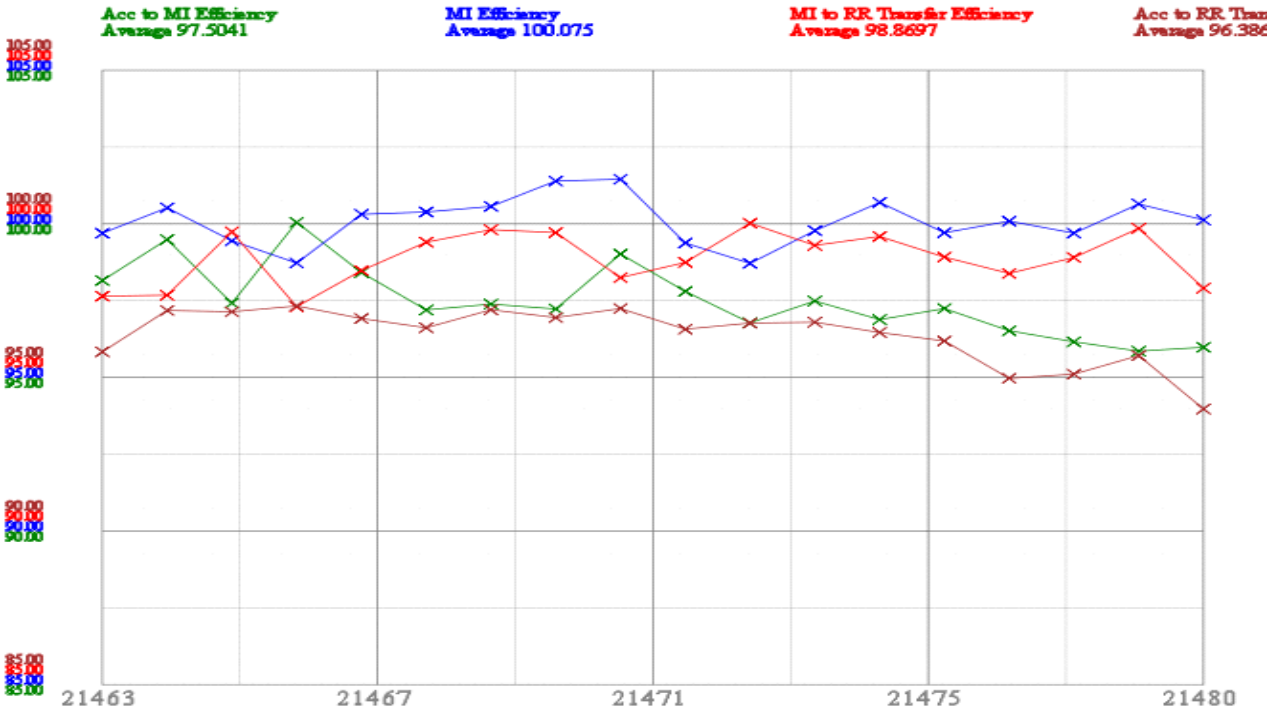
Plots


Accelerators (24.0 hrs.)
Wed Oct 27 07:08:40 2010
Store #8209 AIL=329.267e30
Booster EAPS AC input overload
!!! NuMI off for Target work
poor proton lifetime during collider fill
!!! linac vacuum burst
!!! Pelletron access
!!! Store #8210 AIL=306E30
T:IBEAMB
A:IBEAM
C:LUMAVG
R:BEAM
Tue 08:00 26-Oct 2010
Tue 12:00 26-Oct 2010
Tue 16:00 26-Oct 2010
Tue 20:00 26-Oct 2010
Wed 00:00 27-Oct 2010
Wed 04:00 27-Oct 2010
Wed 08:00 27-Oct 2010


Tue Oct 26 08:00:00 CDT 2010 -- Wed Oct 27 08:00:00 CDT 2010
Stack Size (mA)
Stack Parameters
Emittances (π mm mr)
Time
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
00:00
02:00
04:00
06:00
08:00
A:IBEAM
A:STCKRT
Hourly Rate
M:TOR109
A:PRDCTN
A:EMT3HN
A:EMT3VN
Ave Time between $81's



Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Acc to MI * Acc to MI2 Efficiency	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				490.52			470.95	96.01%	97.19%	97.29%	94.55%	55	18	5.2841	4.8963	1.9136
	Daily Average =>				490.52			470.95					55	18			
21480	Wednesday, October 27, 2010	4:11	47.26	29.50	17.76	143.91	160.60	16.69	93.97%	95.99%	96.11%	92.25%	1	1	7.647	7.231	1.823
21479	Wednesday, October 27, 2010	2:43	40.33	10.25	32.48	113.35	144.22	31.01	95.49%	95.95%	96.70%	92.78%	3	1	5.827	5.305	1.915
21478	Wednesday, October 27, 2010	1:33	42.74	10.88	34.55	80.97	113.58	32.79	94.91%	95.93%	95.77%	91.88%	3	1	6.699	5.788	1.888
21477	Tuesday, October 26, 2010	23:38	77.15	3.47	78.87	7.42	81.18	74.26	94.16%	95.97%	96.35%	92.46%	6	1	6.324	5.627	1.739
21476	Tuesday, October 26, 2010	20:15	24.76	6.41	20.92	297.65	317.62	20.18	96.45%	97.24%	97.51%	94.82%	3	1	5.114	4.9	1.965
21475	Tuesday, October 26, 2010	19:32	26.39	6.99	21.92	277.17	298.11	21.15	96.49%	96.87%	97.09%	94.05%	3	1	4.971	4.966	1.968
21474	Tuesday, October 26, 2010	18:43	26.58	7.15	21.98	256.48	277.61	21.26	96.76%	97.62%	97.14%	94.83%	3	1	5.029	4.693	1.963
21473	Tuesday, October 26, 2010	17:54	26.87	6.57	23.02	234.73	256.89	22.25	96.69%	97.17%	95.93%	93.22%	3	1	5.067	4.496	1.946
21472	Tuesday, October 26, 2010	17:02	26.61	7.02	22.41	213.51	235.04	21.68	96.73%	97.90%	97.43%	95.38%	3	1	5.414	4.782	1.973
21471	Tuesday, October 26, 2010	16:09	24.73	6.19	21.29	193.22	213.81	20.72	97.30%	98.65%	99.76%	98.41%	3	1	4.634	4.548	1.957
21470	Tuesday, October 26, 2010	15:09	24.84	5.33	22.04	172.22	193.51	21.37	96.93%	97.17%	98.14%	95.37%	3	1	4.354	4.292	1.916
21469	Tuesday, October 26, 2010	14:07	25.65	5.98	22.32	150.88	172.47	21.67	97.07%	97.20%	97.46%	94.73%	3	1	4.488	4.532	1.945
21468	Tuesday, October 26, 2010	13:14	25.38	5.87	22.19	129.69	151.04	21.43	96.57%	97.13%	97.63%	94.83%	3	1	5.226	4.414	1.937
21467	Tuesday, October 26, 2010	12:23	25.82	6.25	22.23	108.36	129.84	21.55	96.93%	98.43%	98.39%	96.84%	3	1	4.62	4.522	1.925
21466	Tuesday, October 26, 2010	11:23	24.74	3.64	22.89	86.30	108.51	22.29	97.38%	99.62%	98.80%	98.42%	3	1	4.22	3.825	1.852
21465	Tuesday, October 26, 2010	10:24	25.16	6.02	21.81	65.31	86.43	21.18	97.13%	97.17%	97.13%	94.38%	3	1	4.494	4.528	1.962
21464	Tuesday, October 26, 2010	9:28	27.88	4.11	24.64	41.49	65.40	23.93	97.13%	99.46%	99.71%	99.17%	3	1	4.307	3.891	1.882
21463	Tuesday, October 26, 2010	8:45	45.48	10.79	37.22	6.15	41.60	35.55	95.52%	97.60%	97.26%	94.92%	3	1	6.679	5.794	1.889


Acc to MI Efficiency
Average 97.5041
MI Efficiency
Average 100.075
MI to RR Transfer Efficiency
Average 98.8697
Acc to RR Tran
Average 96.386
105.00
100.00
95.00
90.00
85.00
21463
21467
21471
21475
21480